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ABSTRACT

This book provides the schedules, scales, and procedures for systematic assessment of child care environments. It also suggests the way to develop a scale oriented to the physical environment. The introduction notes that of various scales available for describing and evaluating different aspects of child care programs and centers, many scales are developed without adequate study of their reliability and validity. A more comprehensive effort is currently underway to revise and extend these scales in order to develop an integrated set of validated scales. Following a sample letter of introduction and consent form, the scales are divided into the following categories: (1) center, children, and teacher profiles; (2) early childhood teacher style and dimensions of education rating scales; (3) early childhood physical environment scales; (4) playground and neighborhood observation behavior maps; and (5) the Environment/Behavior Observation Schedule for Early Childhood Environments. Contains 65 references. (AP)

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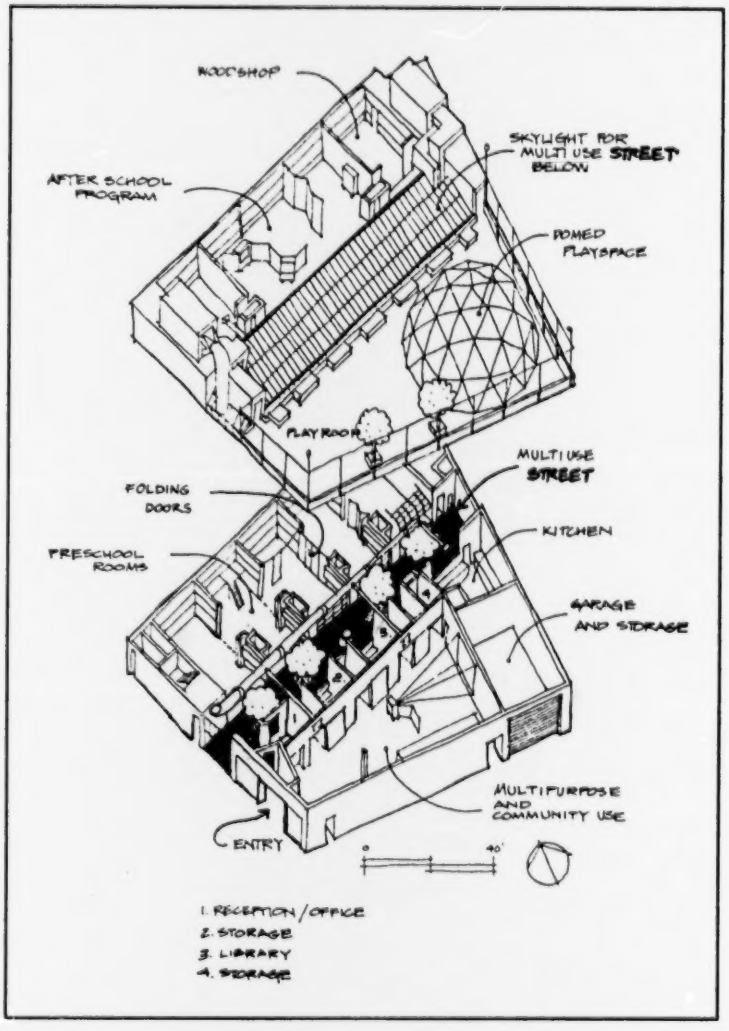
EARLY CHILDHOOD PHYSICAL ENVIRONMENT OBSERVATION SCHEDULES AND RATING SCALES



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EARLY CHILDHOOD PHYSICAL ENVIRONMENT OBSERVATION SCHEDULES AND RATING SCALES:

Preliminary Scales for the Measurement of the Physical Environment of Child Care Centers and Related Environments

Second Edition

Gary T. Moore

Center for Architecture and Urban Planning Research
University of Wisconsin-Milwaukee

Publications in Architecture and Urban Planning
Center for Architecture and Urban Planning Research
University of Wisconsin-Milwaukee

EARLY CHILDHOOD PHYSICAL ENVIRONMENT OBSERVATION SCHEDULES AND RATING SCALES:
Preliminary Scales for the Measurement of the Physical Environment of Child Care Centers and Related Environments

Gary T. Moore

ABSTRACT

This packet of schedules, scales, and procedures is intended for the systematic assessment of the quality of the physical environment of child care centers and related early childhood environments. Already in use in several places in North America, these instruments are reissued for research purposes only. A more comprehensive effort is currently underway to revise and extend these scales in order to develop an integrated set of validated scales for the description and evaluation of the physical environment of child care centers and related early childhood environments. Pp. vi + 74; rating scales.

RELATED PUBLICATIONS AVAILABLE FROM THE CENTER

Recommendations for Child Care Centers, by Gary T. Moore, Carol Gee Lane, Ann B. Hill, Uriel Cohen, & Tim McGinty, third revised edition 1994.

Recommendations for Children's Play Areas, by Uriel Cohen, Ann B. Hill, Carol Gee Lane, Tim McGinty, & Gary T. Moore, 1979.

Case Studies of Child Play Areas and Child Support Facilities, by Uriel Cohen, Gary T. Moore, & Tim McGinty, 1978.

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PREFACE

Enclosed are some of the observation schedules, rating scales, and procedures we have used in recent research on child-environment relations.

The preliminary procedures contained in this report are intended for describing and measuring limited aspects of the physical environment of child care centers and related environments. They were developed and tested in the early 1980s and have been used in a series of studies reported in the literature (see references below). They are based for the most part on a very few of a set of 115 patterns or working hypotheses about the relation of the physical environment of child care centers to subsequent social and cognitive behavior and development. The patterns were developed in conjunction with colleagues at the Center for Architecture and Urban Planning Research (references also below). The research testing the scales and instruments was conducted for the most part in conjunction with my doctoral dissertation in environmental psychology, accepted by Clark University in 1982. Immediately after the development of these scales, there was some interest in their use by others in the child development, child care, and environmental psychology research communities. Results obtained by using them have been reported in the scientific literature.

For some years, I misplaced the originals of the scales as our group moved on to other research questions and design applications. Numerous inquiries over these intervening years led me to want to find or reconstruct the original scales. Thanks to recently moving buildings, and turning my files upside down, the scales and other instruments have been recovered. We are reproducing them here in their original form in the hope they will be of some assistance to those interested in characterizing and evaluating the physical environment of child care centers and related early childhood environments.

My thanks to my colleagues at the University of Wisconsin-Milwaukee who worked with me in developing the original patterns for child care centers -- Uriel Cohen, Tim McGinty, Rick Jules, Carol Lane, Ann Hill, Barbara Armstrong, John Rahaim, and the staff of the Children's Environments Project from 1979 to 1983. My appreciation also to the Canada Council for the Arts and Humanities who underwrote the research on which the scales were based, and to my advisors at Clark University -- Professors Seymour Wapner, Ina Uzgiris, and William Damon -- who assisted in their construction via sharp insights and critiques. Thanks also to my former students Naomi Leiseroff and Marlene Sobczak who helped calibrate the scales and conduct the initial reliability tests on them. And my thanks to my current student, Nancy Genich, for uncovering the scales during our move. My gratitude to Elizabeth Prescott, Thelma Harms, and Bettye Caldwell, and their colleagues, whose own scales provided much of the impetus for the development of these instruments. Appreciation is extended also to Chris Gehman of the Childcare Resource and Research Unit at the University of Toronto for alerting me to a group of subsequent scales developed for evaluating the quality of child care centers.

I have labelled our scales "preliminary scales" for two very particular reasons. One, though they have been used in a series of our own and other investigators' studies in a number of places in North America, the results of which have been reported in the literature, and though some reliability and validity checks have been done on them, they are not as methodologically rigorous as you -- or I -- would now want. They are appropriate at this time, I believe, for *research purposes only*. Second, at the present time, two of my students and I are embarking on a pair of projects to develop a more complete and more methodologically rigorous set of scales for the description and evaluation of child care physical environments. If you are interested in these, please keep in touch and we'll let you know as soon as they are available.

Finally, my thanks and apologies to my colleagues over the years who have asked for these scales -- thanks for keeping asking so we would keep the search alive here, and apologies that you have had to wait so long for them. I hope they are still of some use to you.

Gary T. Moore, Ph.D.
Professor

THE NEED FOR SCALES OF THE PHYSICAL ENVIRONMENT

In much of the "environmental" and social science literature, even when the construct of "environment" is invoked, it is most often limited to the effects of aspects of the *social* environment (e.g., amount and quality of adult interaction with children) and not the physical and/or designed environment. Conversely, those working in the environmental professions tend to ignore the role of the social environment and often espouse, if unconsciously, an environmental deterministic position.

I was recently asked by my colleague and good friend, Roger Hart at the City University of New York, to look at and write a commentary in this regard on the *Infant/Toddler Environment Rating Scale* (ITERS).[1]

The ITERS is a part of the family of child care rating scales developed by Thelma Harms, Richard Clifford, and their colleagues at the Frank Porter Graham Child Development Center at the University of North Carolina, Chapel Hill. Four scales -- the *Early Childhood Environment Rating Scale* for group-based child care centers, the *Family Day Care Rating Scale* for family day care homes, the ITERS, and most recently a scale for elementary school environments -- are a major contribution to the child care literature. They are all similar in structure and overall content. They are the best known and likely the most widely used scales to assess quality child care.

There are a number of scales available for describing and evaluating different aspects of child care programs and centers. Most of them focus almost exclusively on the programmatic or social environmental quality of child care; few pay any attention to the physical designed environment of child care centers. Among the various scales available are the following (despite their titles, they all contain checklists or some other form of rating device for child care programs and/or centers):[2]

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[1] An earlier version of this paper was written to appear in S. Bartlett (Ed.), *Infant Environments*, special issue of *Children's Environments*, 1994, *10*. Since writing that paper, I have learned that the U.S. National Institute of Child Health and Development is conducting a massive multi-site, multi-year study to assess whether child care is good/bad for children and more interestingly what features make it so. My colleague Gary Evans asked innocently of some the principals of that study if they were measuring the physical environment. Apparently they are, using the HOME scale adapted for preschool settings, though I've seen no reports or findings to date.

[2] In addition to these published scales and checklists, a number of investigators have recently become very interested in the question of assessing the quality of child care. Among them are Sarah Friedman at NICHD, Kathleen McCartney of the University of New Hampshire, Deborah Vandell of the University of Wisconsin-Madison, and Alison Clarke-Stewart at the University of California, Irvine.

- *Assessment Profile for Early Childhood Programs,* by Martha Abbott-Shim and Annette Sibley, 1987, 1992.

- *Assessment Profile for Homes with Young Children,* by Annette Sibley and Martha Abbott-Shim, 1993.

- *The NICHD Study of Early Child Care,* by Martha Abbott-Shim, Annette Sibley, Bettye M. Caldwell, et al., 1991, 1992, 1993.

- *The Complete Guide to Choosing Child Care,* by Judith Berezin, 1990.

- *The Parent Guide to Quality Day Care Centers,* by Marilyn Bradbard and Richard Endsley, 1982.

- *Physical Environment Assessment Checklist for Daycare Centers,* by Ruth S. Brent and Kathy Thornberg, 1985.

- *HOME Observation for Measurement of the Environment,* by Bettye M. Caldwell and Robert H. Bradley, 1979, 1981, 1982.

- *Rationale and Development of the HOME Inventories,* by Bettye M. Caldwell and Robert M. Bradley, 1984.

- *Child Care Facility Schedule: World Health Organization--Manual,* by Bettye M. Caldwell and six others from around the world, n.d.

- *The Family Child Care Program Quality Review Instrument,* by the California State Department of Education, 1988.

- The Infant and Toddler Program Quality Review Instrument, by the California State Department of Education, 1988.

- *The Board Self-Assessment Checklist,* by the Child Welfare League of America, 1992.

- *Standards of Excellence for Child Care Services* (rev. ed.), by the Child Welfare League of America, 1992.

- *Infant/Toddler Environment Rating Scale: Reliability and Validity Study--Final Report,* by Richard M. Clifford, Susan D. Fleming, Ellen S. Peisner, Thelma Harms, and Debby Cryer, 1989.

- *The Quality Indicator Checklist,* by Randi Glass and Brenda Martin, n.d.

- *The Family Day Care Rating Scale,* by Thelma Harms and Richard Clifford, 1989.

- *The Infant/Toddler Day Care Rating Scale,* by Thelma Harms, Debby Cryer, and Richard Clifford, 1990.

- *The Early Childhood Environment Rating Scale,* by Richard Clifford and Thelma Harms, 1983.

- *The Medicine Hat Child Care Evaluation Instrument,* by Marlene Jubenvill, 1985.

- *Evaluating Home-Based Day Care,* by Louise Child Care Centre, 1988.

- *The Accreditation Procedures of the National Academy of Early Childhood Programs,* by the National Association for the Education of Young Children, 1985.

- *The Physical Setting in Daycare,* by Elizabeth Prescott, 1984.

- *The Day Care Environmental Inventory Assessment of Child-Rearing Environments,* by Elizabeth Prescott, Sibyl Kritchevsky, and Elizabeth Jones, 1972.

- *Assessing Quality Day Care: A Checklist,* by Anne Soderman and Alice Shiren, 1980.

- *Describing and Quantifying Open Education,* by R.E. Traub, J. Weiss, C.W. Fisher, and D. Musella, 1972.

- *Purdue Home Stimulation Inventory: Training Manual,* by Theodore Wachs, 1990.

- *Observational Manual for Day Care Study,* by Theodore Wachs, 1994.

But let us look at just one example, one of the family of instruments developed by Thelma Harms, Richard Clifford, and their colleagues. It is one of the two best known and most widely used instruments for assessing center-based or group child care settings (the other is the various *HOME Inventories* developed and tested quite rigorously by Bettye Caldwell, Robert Bradley, and their colleagues; a third less well known, but now part of the basis for the national NICHD Study of Early Child Care is the *Assessment Profile for Early Childhood Programs* by Martha Abbott-Shim and Annette Sibley).

The "Infant/Toddler Environment Rating Scale" (ITERS), developed by Thelma Harms, Debby Cryer, and Richard Clifford, consists of 35 items organized into seven sub-scales. It is intended for the assessment of the quality of center-based infant and toddler care for children up to 30 months of age. It is based on a broad definition of child care environments including not only what the authors call the organization of space but also interaction, activities, schedule, and provisions. It is as comprehensive as any scale available for the assessment of child care.

Many so-called scales are developed and promulgated in informal literature without adequate study of their reliability and validity. Not so the ITERS and other scales developed by this team. Several studies of the psychometric properties of the ITERS were conducted and reported in the period 1989-1992. In particular, Clifford and his colleagues (Clifford, Russell, Fleming, Peisner, Harms, & Cryer, 1989) found that interrater and test-retest reliability were in the range of r = .58 to .89, internal consistency was alpha = .83, criterion validity was 83%, and content validity was between 75 to 86%. All of these figures are very respectable, enough so that Columbia University's Teachers College Press has published the scale (and others in the Harms and Clifford series).

So the scale is very reliable and very valid vis a vis other available scales and experts' opinions. But is it *physically environmental*?

To try to get a handle on this question, and first to be quantitative, I did a content analysis of the scale. Of the 35 items, 14 have some physical environmental content *(environmental* used here in the sense of the physical designed or planned environment of the infant or toddler center, not the social or organizational environment, i.e., that part of the total environment that can be manipulated architecturally). For example, the item "Furnishing for routine care" includes numbers of pieces of furniture, comfort and support, storage, and child-sized. On the other hand, items like "Nap" don't contain any reference to whether napping should be in separate nap rooms, in double-functioning nap/play rooms, or in partially partitioned napping spaces. The scale is silent on this important environmental issue.

Of the 396 detailed descriptors that make up and are used to score a center on the scale items (e.g., "diapering done near source of hot water," or "nap is scheduled appropriately for each child"), only 35 or 8.8% have any *physical environmental content* that could help one assess the physical environment -- the facility itself. Some of these descriptors are very good, like (undoubtedly based on the work of Elizabeth Prescott) requiring softness and cozy special areas for high scores on "Furnishings for relaxation and comfort" and (perhaps based on the work of Fred Osmon) correlating the separation of activity areas from circulation with quality child care.

But in other places the environmental characteristics of a test item are confounded with the behavioral use patterns. "Furnishings permit appropriate independence for toddlers

(Ex. toddlers use small chairs...)." Which is being assessed? The environmental characteristic (the character of the furnishings themselves)? Or the behavioral use pattern (that toddlers do or do not use small chairs, which could be influenced not only by the characteristics of the furniture but also by staff, whether games are spread out on the floor or on tables, and so forth)?

And in still other places, the scale is surprisingly silent on important issues about the physical environment of infant and toddler centers. Space only allows me to give a few examples to make the point. Under "Room arrangement," the scale seems to uncritically assume one overall organizational pattern for infant/toddler centers -- the box-car arrangement of a double-loaded corridor with self-contained classrooms. How about other organizations, like what we have been calling for many years "modified open space"? The scale is silent on the pros and cons of different organizational patterns, despite the existence of research literature documenting the relative advantages and disadvantages of different spatial layouts. It may be that the procedure of calculating validity by comparison with other scales and a small panel of experts is an inherently conservative process.

"Areas for quiet and active play separated (Ex. by low shelves)" is an indicator of good room arrangement. A more sophisticated notion would be "zoning," a standard operating procedure of any architect. Also related to the goodness of room arrangement is the item that "Young infants given space and materials to explore while protected from more mobile children." No one would disagree about the necessity for safety, but the scale is silent on age-mixing, so much a part of many progressive approaches to child care (cf. the book by Lilian Katz on the case for mixed-age grouping in early education), and ways in which the environment might aid and abet age-mixing without creating safety problems.

Under "Greeting/departing," the scale is silent about the characteristics of the environment that might aid greeting and departing like our concept of "cubby clusters." Similarly, under "Meals/snacks," the scale doesn't discuss the pros and cons of centralized industrialized kitchens (a major expense for any chid care center) versus what we have been calling since 1979 "children in the kitchen."

The scale is very good about the necessity for a variety of play areas for infants and toddler (art, music and movement, blocks, pretend play, even sand and water play for toddlers), but again is silent on the environmental characteristics of infant/toddler center that will facilitate these types of developmentally appropriate play activities.

On the items measuring "Peer interaction," not one descriptor relates to the designed environment. However, we have found child-child interaction to be a function of plan type (reported in Carol Weinstein and Tom David's 1987 *Spaces for Children).* All other things equal, modified open plan centers evidence almost twice the degree of social interaction among children than do open plan centers. Similarly, regarding "Caregiver-

child interaction," where again no descriptor relates to the physical setting, we have found significantly more caregiver involvement with children in spatially well-defined activity settings than in moderately defined or poorly defined ones (reported in the 1986 *Journal of Environmental Psychology).* It would seem valuable to add to the ITERS scale items reflecting these findings about the role of the physical environment in quality child care.

The ITERS scale is also strangely silent on a number of other environmental issues that architects and other designers are confronted by each time they move a pencil in designing a child care center, and center directors are confronted with each time they consider the facility program for a new or renovated center. Among these are location, size, scale, image, circulation, character of the outdoor activity areas, and so on.

Finally, to not only give a critical review, but to suggest how we might develop a more environmental scale, let's look at one example of how such a scale might be revised and modified to incorporate more environmental content. For instance, would it not be possible to not only requiring a variety of activity areas, but also to specify something about their supportive physical environmental characteristics? The environmental notion of "resource rich activity areas," on which we have published scientific research, was transformed a number of years before the ITERS into a one of the preliminary scale contained herein for the definition of behavior or activity settings. And on a larger scale, the organization of the space of the center as a whole, on which we have also conducted hard research, was made into another preliminary scale for spatial organization. The two were labelled the "Early Childhood Physical Environment Scales" and are included later in this report. Each is comprised of 10 items which, like the ITERS, are measured on a Likert-type scale, in our case a 5-point scale from descriptors like "visual connections to other activity spaces" to "lack of connections" or "degree of connection between indoor and outdoor activity spaces" to "lack of connection."

Together with two of my students, Nancy Genich and Shan Sivakumaran, we are currently working to develop a new set of scales for the evaluation of child care centers which could be used for self-assessment, for monitoring, maybe for parents concerned about quality child care, for formal post-occupancy evaluation, and as an aid in the redesign of exiting centers or the design of new centers.

As the first part of that effort, we will be conducting a comparative evaluation of all other available child care center evaluation tools and scales. But beyond that, we will develop a number of new design criteria. Over the years, I have become rather convinced that somewhere around 18 patterns are absolutely critical for the success of any child care facility. I hope that our new "Early Childhood Physical Environment Scales" will include many or most of those 18 principles as scale items with appropriate descriptors.

Subsequently we will test the reliability and validity of the new scale (or scales) on existing child care centers (Shan and Nancy have already begun this work), and will revise it appropriately.

Part of Nancy's contribution, as an undergraduate independent study is to develop a very preliminary version of a new comprehensive scale for a POE of an existing child care center. And part of Shan's contribution, as part of an advanced doctoral methods course, is to rigorously pilot test part of a different preliminary version of the new scale.

We hope to report on progress on the development of the new scale(s) in *Children's Environments, Young Children,* and other appropriate journals.

The School of Architecture & Urban Planning The University of Wisconsin · Milwaukee

INTRODUCTION TO THE SCALES AND INSTRUMENTS

Dear Colleague:

Enclosed are some of the scales we have used in recent research on child-environment relations, in particular:

- Early Childhood Center, Children, and Teacher Profiles
- Early Childhood Teacher Style and Dimensions of Education Rating Scales
- Early Childhood Physical Environment Scales
- Playground and Neighborhood Observation Behavior Maps
- Environment/Behavior Observation Schedule for Early Childhood Environments

The first two sets of profiles and scales are used to measure four dimensions of teacher or caregiver style in early childhood settings: encouragement versus restriction, conformity versus nonconformity to routine, group versus individual teaching, and fostering independence versus restraint; and one dimension of overall educational philosophy of the center: openness versus closedness of educational philosophy of the school, kindergarten, preschool, or child care center.

The third set of scales are our first attempts at systematic scales to characterize two important aspects of the layout and ambience of early childhood development centers.

In research terms, these three sets of scales could be considered to be measures of independent variables -- the first two social environmental independent variables, and the third one physical environmental independent variables.

The two sets of behavior maps and observation schedules are used to rate or evaluate early childhood environments in terms of a number of predicted behavioral consequences of the socio-physical environment, including group size, gender- , age- and ethnic-group mixing, degree of engagement, direction of behavior, exploratory behavior, social interaction, cooperation and competition, type of teacher involvement, and type of teacher-teacher interaction.

In research terms, these last two sets of behavior maps and observation schedules may be considered to be measures of dependent variables -- measures of cognitive, social, and motor behavior highly correlated with development.

The development of these scales and instruments is discussed at some length in *Some Effects of Physical and Social Environmental Variables on Children's Behavior* (Ph.D. dissertation, Clark University, 1982, available from University Microfilms International).

The use of these scales is also reported in a series of papers going back to early 1983. Some of the sources you may wish to consult for additional information include:

- Design patterns for children's environments: Synopsis of a two-year research and design project (with U. Cohen & T. McGinty). In R. Thorne & S. Arden (Eds.), *People and the Man-Made Environment: Building, Urban, and Landscape Design Related to Human Behaviour.* Sydney, Australia: University of Sydney, Department of Architecture, 1980. Pp. 23-39.

- The spatial organization of an early childhood development center: Open space, zoning, and circulation (with U. Cohen, B. Armstrong, & T. McGinty). *Day Care Journal,* Fall 1982, *1*(2), 35-38.

- Some effects of the organization of the socio-physical environment on cognitive behavior in child care settings. Paper presented at the Society for Research in Child Development meetings, Detroit, April 1983.

- An empirical test of design patterns for children's environments. In D. Joiner, G. Brimilcombe, J. Daish, J. Gray & D. Kernohan (Eds.), *People and the Physical Environment Research.* Wellington, New Zealand: Ministry of Works and Development, 1983. Pp. 290-301.

- The state-of-the-art in play environment research and applications. In J.L. Frost & S. Sunderlin (Eds.), *When Children Play: Proceedings from an International Conference on Play and Play Environments.* Wheaton, MD: Association for Childhood Education International, 1985. Pp. 171-192.

- Effects of the spatial definition of behavior settings on children's behavior: A quasi-experimental field study. *Journal of Environmental Psychology,* September 1986, *6*(3), 205-231.

- The physical environment and cognitive development in child care centers. In C.S. Weinstein & T.G. David (Eds.), *Spaces for Children: The Built Environment and Child Development.* New York: Plenum, 1987. Pp. 41-72.

In a nut-shell, the findings from these studies -- using the above instruments -- suggest that the design of outdoor play environments and the architecture of child care centers lead to significant effects on a number of cognitive and social developmental variables.

For example, one study found that adventure playgrounds lead to more cognitive play while neighborhood play settings support more social play (cf. the 1985 paper above). Another study found that, while controlling for socio-economic differences between children and for stylistic differences between teachers, what we have been calling "well defined behavior settings" and also "modified open plan" child care centers both contribute to more cognitive and social activities than either than spatially poorly defined activity settings (the 1986 paper) and open plan or self-contained classroom plans (the 1987 paper). Complex interactions were found between the socio-economic level of the children, philosophy of education of the teachers, and the physical environment in affecting cognitive and social behavior. The last two of the above papers also report on these interaction effects.

In general, our findings have been taken as support for a general ecological model of environment-behavior interactions, and have been explained by reference to an interactional theory of child development and the environment (small parts of both the 1986 and 1987 papers). The findings have also pointed out some of the linkages between the architecturally designed environment and the social system of child care as they independently and in concern influence child care practice, social and cognitive behaviors, and, ultimately, child development.

My research group and I would be most interested to hear about your research related to these issues too. Please drop us a line. And if you have any questions about the use or analysis of data from these scales, please don't hesitate to contact us.

Sincerely,

Gary T. Moore, Ph.D.
Professor

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Fax: (414) 229-6976
Internet: gtmoore@alpha1.csd.uwm.edu

Enc.

SAMPLE LETTER OF INTRODUCTION AND CONSENT FORM

1. Letter of Introduction for Director, Parents, and Teachers

2. Parental Consent Form

Each research setting has its own requirements regarding the protection of human subjects, and its own requirements regarding what types of permissions need to be obtained from parents and teachers. The following letter and consent form are only offered as examples. Please consult with the director of the center or centers where you plan to conduct your research and with your own institutional board for the protection of human subjects about locally applicable regulations and requirements.

I would add, nevertheless, that we are firm believers that the subjects of our studies deserve the opportunity to be debriefed about the findings. This is why on all of our studies we add a box where parents and staff can check off if they would like a précis (in lay terms) of the findings of the study.

The School of Architecture & Urban Planning The University of Wisconsin-Milwaukee

EVALUATION OF EARLY CHILDHOOD ENVIRONMENTS PROJECT

Dear Parents and Teachers:

Professors Gary T. Moore and Harry Van Oudenallen, with the research assistance of Naomi Leiseroff and Marleen Sobczak, are conducting a study of the physical environment of child care centers.

We are in the process of talking with teachers and observing children to see how they use space, and what impact space has on daily activities. While a lot is known about the role of teachers, parents, and curriculum, this is one of the first studies to look at the role of the physical environment on the development of children. The study will have implications for better architectural design and interior layout of day care centers around the city, county, and elsewhere.

In order to complete our study, we would like to observe groups of children in the classroom a few times over the next month. One of the trained assistants will be present in the room to take notes. At no time will our study interfere with the children, staff, or curriculum. No names or information on individual children will be recorded--we are interested only in group results. The notes we take will be recorded in an anonymous fashion, and will be kept in strict confidence.

Once the study is completed, we will be pleased to give you a summary of the results as a partial thank-you if you check off the box on the next page. In the meantime, if you have questions, please contact either of us at the below address and telephone number.

If you have complaints about the study, please call or write Dr. William Hoffman, Vice-Chair, Institution Review Board for the Protection of Human Subjects, Graduate School, University of Wisconsin-Milwaukee, Milwaukee, WI 53201. Tel. 414-963-5120. Although Dr. Hoffman will ask your anme, all complaints are kept in confidence.

This research project has been approved by the University of Wisconsin-Milwaukee Institutional Review Board for the Protection of Human Subjects.

Thank you for your assistance and cooperation.

Sincerely yours,

Gary T. Moore
Assistant Professor
Director, Envrionment-Behavior Research Institute

The School of Architecture & Urban Planning The University of Wisconsin-Milwaukee

PARENTAL CONSENT FORM: EVALUATION OF EARLY CHILDHOOD ENVIRONMENTS PROJECT

I have received a complete description of the study and agree to have my child participate.

Name of Center _____ Child's Room _____

Parent's Signature _____ Child's Name _____ Date _____

I would appreciate a copy of a summary of the results when the study is completed.

☐ Yes Address: Number and Street _____

City and State _____ Zip Code _____

This research project has been approved by the University of Wisconsin-Milwaukee Institution Review Board for the Protection of Human Subjects.

Thank you for your cooperation.

Center for Architecture and Urban Planning Research P.O. Box 413 Milwaukee, Wisconsin 53201 414 963-4014

CENTER, CHILDREN, AND TEACHER PROFILES

1. Center Profiles

2. Children Demographic Profiles

3. Teacher Demographic Profiles

The following three profiles -- or variations thereof -- have and may be used to "measure" and record the center size and philosophy of early childhood education of the child care settings used in our -- and your -- studies (#1) as well as the demographic characteristics of the children and professional staff.

All three measure *subject group variables.* Here's the rationale for doing this.

As the dependent behavioral consequences (social and cognitive developmentally related behaviors, for example) of being in child care are influenced not only by the qualities of the physical designed environment, but also and likely more fundamentally by the overall character of the child care setting including the demographic background of the children and a number of other important subject group variables, it is necessary in many types of studies to be able to measure and factor out of the way these variations, in order to be left with effects due to the physical environment.

Said differently, and a bit more technically in the language of research design, and especially quasi-experimental research design (Cook & Campbell, 1979), as the dependent behavioral consequences of child care are based on an ongoing "treatment" (the ongoing program and design of each setting), proxy pretest measure are often made on variables believed to correlate highly with posttest scores within each group, despite being different in form from the posttest dependent scores. This is a strategy recommended by Cook and Campbell for what is called an "untreated control group design with proxy pretest measures."

Previous quasi-experimental and correlational field studies of child care settings reported in the literature have found a variety of variables to be highly correlated with observational measures of children's behavior, including children's socio-economic status (Reiss & Dyhdalo, 1975; Wright, 1975), age and gender of the children (Wright, 1975), various measures of teacher style and philosophy of teaching (Fowler, 1980; Prescott et al., 1972; Traub et al., 1972; Verma & Peters, 1975), and size of center (Prescott & Jones, 1967). That is, certain child and teacher variables measured in previous studies have been found to be potentially pre-existing sample biases that could affect the dependent measures. As randomization is impossible in most chid care studies, and therefore true experimental designs are most often out of the question, several of these

variables need to be selected as proxy pretest measures, both to test for equivalence or non-equivalence of samples, and to use as covariates in subsequent statistical analyses.

As center size has been found to be inversely related to the quality outcomes of child care programs (Prescott & Jones, 1967), data on this and other center characteristics may be collected on the Center Profiles (questions 1-5).

To determine the overall philosophy of particular child care centers used in studies, a general question about philosophy of early childhood education may be put to the center director (Center Profiles, question 6) and brochures, parent handouts, or other written material on the stated philosophy of the center may be collected and analyzed. Additional questions may also be asked, such as Likert-type items focused on whether children are encouraged to follow their own interests or a set curriculum, and other similar questions, all of which may be taken as a very rough measure of "open" versus a more "traditional" approach to early childhood education. These may also be collected on the Center Profiles (questions 7-12). Based on the director's characterization of the overall philosophy of the center, content analysis of published brochures, and these six Likert-type items, it is possible to categorize the overall philosophy of centers in terms of five major types of philosophy -- open education, individualized instruction, traditional education, other specialized program (e.g., Montessori, Waldorf), or eclectic program.

As children's socio-economic status, age, and gender have been found to be highly correlated with observational measures of their behavior in chid care settings (Reiss & Dyhdalo, 1975; Wright, 1975), another profile has been developed to record demographic characteristics of the children of different centers, or houses or rooms within centers. To measure age, gender, and socio-economic status a Children Demographic Profile is offered. Socio-economic status may then be computed as an additive index based on average family income (in thousands), ethnicity (proportion of Caucasian children in the center to the total number of children), and average family education (from the latest available U.S. or Canadian Census for the metropolitan statistical area in which the child care center is located).

Finally, to measure and be able to control for the differences between centers in terms of the demographic characteristics of the professional staffs, a Teacher Demographic Profile has been developed and is included with this package of scales and instruments.

CENTER PROFILES

Name of Early Childhood Development Center: _____

To help us understand the nature of your center better, would you please answer the following few questions:

1. Age range of children: _____
2. Total number of chilren: _____
3. Capacity at any one time: _____
4. Number of professional staff: _____
5. Number of Program Supervisors: _____
6. Is there a stated philosophy for the center? If so, would you summarize it in a few words?

_____

_____

Please respond to the following general statements by indicating the extent to which they characterize the operational philosophy of your center. All responses will be kept confidential.

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
7. For the most part, this center encourages children to follow their own interests rather than follow a curriculum.	—	—	—	—	—
8. Most teachers stress conformity to rules and group expectations.	—	—	—	—	—
9. Most classroom activities are focused on group rather than individual teaching.	—	—	—	—	—
10. I believe the children need strong role models from the staff.	—	—	—	—	—
11. I would characterize this center as pursuing a "traditional" versus an "open" philosophy of education.	—	—	—	—	—
12. I would characterize the staff as actually practicing an "open" versus a "traditional" mode of teaching.	—	—	—	—	—

13. Do you have a brouchure that describes your center? If so, would you be kind enough to attach a copy to this sheet? _____ Thank you very much.

Thank you very much for your considerable time and effort. It's been much appreciated.

EARLY CHILDHOOD DEVELOPMENT CENTERS / CHILDREN DEMOGRAPHIC PROFILES

To develop a profile of the average child in your early childhood development center, would you please fill in the below information for the children in each room, age group, or other segment of your program. No names will be used, none of the questions is personal, and none is intended in any way as an invasion of the children's or your center's privacy. In fact, all we need to know is averages for the children in different rooms, not any data on individual children. And all information will be kept strictly anonymous and confidential.

Name of Early Childhood Development Center: _____

Room Name or Number	Number of Boys / Girls		Average Age	Ethnicity # White	# Black	# Hispanic	# Other	Average Parental Income
1. ____	____	____	____	____	____	____	____	____
2. ____	____	____	____	____	____	____	____	____
3. ____	____	____	____	____	____	____	____	____
4. ____	____	____	____	____	____	____	____	____
5. ____	____	____	____	____	____	____	____	____
6. ____	____	____	____	____	____	____	____	____
7. ____	____	____	____	____	____	____	____	____
8. ____	____	____	____	____	____	____	____	____
9. ____	____	____	____	____	____	____	____	____
10. ____	____	____	____	____	____	____	____	____

Use additional sheets if necessary.

Thank you very much for your cooperation and assistance.

For more information, contact Gary T. Moore, Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53201.

EARLY CHILDHOOD DEVELOPMENT CENTERS / TEACHER DEMOGRAPHIC PROFILES

To develop a profile of the teachers in your early childhood development center (or room), would you please fill in the below information for all of the teachers who are currently working in your center (or room). To allow us to correlate this information with a questionnaire we will ask each of them to fill out, and yet to preserve anonymity, would you also record the last four digits of each teacher's social security number. No names will be used, and all information about your center and about your staff will be kept strictly anonymous and confidential.

Name of Early Childhood Development Center: _____

Teacher/Social Security Number	Room	Gender	Age	Formal Education[a]			Classification of Child Care Training[b]					Yrs of Day Care Work Experience
				HS	HS+C	CD	V	SCC	PCC	PPR	AR	
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												

Notes:

a Years of Formal Education: HS = High School Diploma; HS+C = High School plus some College; CD = College Degree.

b Classification of Child Care Training: V = Volunteer; SCC = Secondary Child Care; PCC = Primary Child Care; PPR = Primary Program Responsibility; AR = Administrative Responsibility.

Use additional sheets if necessary. Thank you very much for your cooperation and assistance.

For more information, contact Gary T. Moore, Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53201.

EARLY CHILDHOOD

TEACHER STYLE AND DIMENSIONS OF EDUCATION

RATING SCALES

1. Early Childhood Teacher Style Rating Scale
2. Early Childhood Dimensions of Education Rating Scale
3. Teacher Style and Dimensions of Education Validity Check

As mentioned earlier, it has been found in the literature that various measures of teacher style and ways of teaching are highly correlated with behavioral outcome measures of developmentally appropriate child care (Fowler, 1980; Prescott et al., 1972; Traub et al., 1972; Verma & Peters, 1975), and thus these subject group variables may be potentially pre-existing sample biases that can affect the dependent measures.

A number of scales have been developed and reported in the literature for measuring teacher styles and ways of teaching in preschool settings including the Dimensions of Schooling Questionnaire, Teacher Practices Observation Form, Teacher Belief Rating Scale, Environmental Standards Profiles, and other such scales (cf. Fowler, 1980; Prescott et al., 1972; Traub et al., 1972; and Verma & Peters, 1975).

Some of the existing scales are cumbersome and time-consuming to administer (e.g., the Traub et al. [1972] Dimensions of Schooling Questionnaire contains 28 items each with five alternatives that must be ranked without ties and requires and elaborate scoring procedure), while others are very informal and are not susceptible to quantitative analysis (e.g., the interview procedures used by Prescott et al. [1972]). To measure initial group differences in teacher style and dimensions of preschool education adopted by those teachers, a compromise set of three scales were developed based on the literature and that incorporates portions of the Prescott et al. and Traub et al. work.

Teacher Style. In a study by Prescott et al. (1967) a factor analysis of 52 variables about patterns of preschool teacher behavior indicated four bipolar dimensions of teacher style:

- encouragement versus restriction
- conformity versus nonconformity to routine
- group versus individual teaching
- foster independence versus restraint

A five-point Likert-type sub-scale was developed for each of these dimensions by using the variables from the Prescott et al. work that had the greatest positive and negative factor loadings on each of these dimensions (selected from Tables 1 to 4 of Prescott et al., 1967, pp. 18 and 59), and transform each variable into a Likert-type item. Thus, for example, the sub-scale for "encouragement-restriction" was based on Likert-type statements about encouraging children to pursue their own interests (factor loading +.89), insuring that children know the correct rules of social living (-.31), rewarding creativity an experimentation in the classroom (+.52), and helping children to be controlled in the classroom (-.68). The completed scale, consisting of 16 five-point items, is called the Early Childhood Teacher Style Rating Scale, initially published in 1982.

Dimensions of Education. The scale dealing with *dimensions of practical approaches to education* was more directly deduced from the Traub et al. (1972) Dimensions of Schooling (DISC) Questionnaire. Their questions measured the openness versus closedness of educational programs (not the physical space) of schools and preschools. It had ten sub-dimensions of openness-closedness, with a total of 28 items. To simplify the administration and scoring of this instrument, two items were selected from each of the ten sub-dimension and, rather than having subjects rank order five alternative responses, these items were transformed into five-point Likert-type items. For example, the sub-dimension of "student control" with items about rule-making and rule-enforcing was transformed into two items about children being free to talk and move about as they please (+ loading on openness) and about the room being set for the convenience of the teachers (- loading on openness). The completed scale, composed of 20 five-point items, is called the Early Childhood Development Dimensions of Education Rating Scale.

Validation. To validate both scales, a Teacher Style and Dimensions of Education Validity Check was developed for use by the directors and teachers of 16 child care centers in the greater Milwaukee area (Moore, 1982). Each director rated her staff, and all the teachers rated themselves on the six dimensions that comprised these two scales. Comparisons were made between the director's and the teacher's ratings. As each score was taken on the same subject (a self-rating and a director's rating), a paired samples *t*-test was employed. The results indicated no significant differences between self- and director's ratings on five of the six dimensions (*t*'s ranging from 0.25 to 1.43, $df = 15$, all *p*'s > .10). That is, teachers and directors agreed on five of the dimensions of teacher styles used by the teachers in the classroom. The only difference was that the directors thought their staff to be more open philosophically than the teachers felt themselves to be, though they did agree on their actual performance in the classroom. Though the *t* values were moderately low, this analysis suggests that for *research purposes only* the scales are relatively valid indicators of teachers' styles of early childhood education.

Both of the Early Childhood Teacher Style Rating Scale and the Early Childhood Dimensions of Education Rating Scale have been used in the work of others, e.g., by Clifford, Harms, and their colleagues in the construction and validation of their own infant, toddler, and preschooler scales (see Clifford et al., 1989).

EARLY CHILDHOOD TEACHER STYLE RATING SCALE*

Please think for a moment about your practical beliefs about what you actually do while working with children. Please respond to the following statements by indicating the extent of your agreement or disagreement with each statement. It will be difficult to decide on some, but please do your best. There are no right or wrong answers, only your own style of teaching. To allow us to correlate the information on this and other forms, would you also indicate the last four digits of your social security number. All responses will be kept strictly anonymous and confidential.

Name of Early Childhood Development Center: _____

Name of your Room or Area: _____

Social Security Last Four Digits: _____

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1. Generally I encourage children to pursue their own interests.	—	—	—	—	—
2. I try to insure that children know the correct rules of social living.	—	—	—	—	—
3. I reward creativity and experimentation in the classroom.	—	—	—	—	—
4. I try to help the children be very controlled in the classroom most of the time.	—	—	—	—	—
5. I try to help children to adapt to new situations.	—	—	—	—	—
6. I believe children should conform to academic expectations in the classroom.	—	—	—	—	—
7. Whenever possible I try to anticiapte situations before they arise.	—	—	—	—	—
8. With very few exceptions I try to follow the leads of how other teachers do things.	—	—	—	—	—
9. I believe a major function of child care is the care of the individual needs of different children.	—	—	—	—	—
10. Most of the time I try to teach to groups of children.	—	—	—	—	—
11. I try to give approval for individual accomplishments.	—	—	—	—	—
12. I direct most of my time to helping children conform to the expectations of the group.	—	—	—	—	—

more on next page

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
13. I encourage children to solve their own problems.	—	—	—	—	—
14. I direct most of my time to formal academic lessons.	—	—	—	—	—
15. I accept what children say they are feeling.	—	—	—	—	—
16. I believe in the importance of correct responses.	—	—	—	—	—

Thank you for your time and assistance.

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* This scale was developed by and copyright 1982 by Gary T. Moore based on the work of Prescott, Jones, and Kritchevsky (1967, 1972). For more information, contact the Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53201.

EARLY CHILDHOOD DIMENSIONS OF EDUCATION RATING SCALE*

Please consider your early childhood program and how you personally work with the children. Please respond to the following statements by indicating the extent of your general agreement or disagreement with each statement. It will be difficult to decide on some, but please do your best. There are no right or wrong answers, only your own way of teaching. To allow us to correlate the information on this and other forms, would you also indicate the last four digits of your social security number. All responses will be kept strictly anonymous and confidential.

Name of Early Childhood Development Center: _____

Name of your Room or Area: _____

Social Security Last Four Digits: _____

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1. Children are encouraged to develop at their own rate and in their own way.	—	—	—	—	—
2. The needs and interests of staff and parents determine educational objectives in the classroom.	—	—	—	—	—
3. Almost all the time children are free to select and use whatever materials they wish.	—	—	—	—	—
4. Most activities can only be done by children when the staff give permission.	—	—	—	—	—
5. We make considerable use of the center outside our room and of the community beyond the center.	—	—	—	—	—
6. I try to restrict most activities to the areas designated for them.	—	—	—	—	—
7. Children are permitted to move about from one group to another or from one activity to another without asking.	—	—	—	—	—
8. Preschool-age children are not capable of making significant decisions about their preschooling.	—	—	—	—	—
9. Fixed timetables and cues for the changing of activities get in the way of child development.	—	—	—	—	—
10. The amount of structured time during which I set tasks for the children exceeds the amount of unstructured free time.	—	—	—	—	—
11. Children are free to work at their own pace and to learn in a way that they find personally satisfying.	—	—	—	—	—
12. I find that most children of the same age learn in much the same way.	—	—	—	—	—

more on next page

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
13. Within my area and the center as a whole I encourage children to group themselves without regard to age.	—	—	—	—	—
14. Within the center children are assigned to graded groups on the basis of age or physical ability.	—	—	—	—	—
15. As a teacher, I see my role mainly as a resource person not a leader.	—	—	—	—	—
16. I often make formal presentations to groups of children.	—	—	—	—	—
17. I believe that the primary importance of assessments of the children is to help each child decide what to focus on.	—	—	—	—	—
18. Formal tests would be valuable in determining the growth and achievement of children.	—	—	—	—	—
19. In my room, children are free to talk and move about whenever and however they please.	—	—	—	—	—
20. The rules of the room are set for the most part to make it easier for the staff to teach the children.	—	—	—	—	—

Thank you for your time and assistance.

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* This scale was developed by and copyright 1982 by Gary T. Moore based on the work of Traub, Weiss, Fisher, and Musella's more elaborate Dimensions of Schooling (DISC) questionnaire. For more information, contact the Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee WI 53201.

TEACHER STYLE AND DIMENSIONS OF EDUCATION VALIDITY CHECK*

Your professional staff members have been asked to fill out two brief questionnaires about their style of teaching and about the educational climate of their classes. In order to validate these measurement instruments, we would appreciate if you (as Director, or your senior Program Coordinators) would fill out the below scales for each of the professional staff members. So that we can correlate findings, we will need you to indicate the last four digits of their social security number and room--we do not, however, want names. We will not diulge any of this information to the staff or anyone else; in all ways it will be kept strictly confidential and anonymous. Please use one of the attached sheets for each staff member, and respond to the below statements for each by indicating the degree of your agreement or disagreement with how well each statement characterizes the staff member.

Name of Early Childhood Development Center: _____

1. Degree to which the teacher encourages the children to follow their own interests versus to follow directions from the staff.

2. Degree to which the teacher believes in strict conformity versus non-conformity to rules and regulations.

3. Degree to which the teacher believes in group versus individual teaching.

4. Degree to which the teacher believes in the independence of children versus their need for dependency and role models.

5. Degree to which the teacher believes in "open" versus "traditional or closed" modes of education.

6. Degree to which the teacher actually practices open versus closed modes of education.

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* This validation scale was developed by and copyright 1982 by Gary T. Moore for use with the Teacher Style Rating Scale and the Dimensions of Education Rating Scale. For more information, contact the Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53201.

TEACHER STYLE AND DIMENSIONS OF EDUCATION VALIDITY CHECK
EXTRA PAGES

Please use one sheet for each professional staff member in your Center. Either fill it in yourself, or fill it in for your senior Program Coordinators and then ask them to fill it in for their teachers. Please remember to include the last four digits of the person's social security identification number, and please remember this is strictly confidential.

Room or Area in the Center: _____

Teacher Social Security Number: _____

1.

_____	_____	_____	_____	_____
strongly encourages own interests	slightly encourages own interests	undecided	slightly encourages directions	strongly encourages directions

2.

_____	_____	_____	_____	_____
strongly in conformity	slightly in conformity	undecided	slightly in non-conformity	strongly in non-conformity

3.

_____	_____	_____	_____	_____
mostly group	some group	undecided	some individual	mostly individual

4.

_____	_____	_____	_____	_____
strongly in independence	slightly in independence	undecided	slightly in dependence	strongly in dependence

5.

_____	_____	_____	_____	_____
strongly in open	slightly in open	undecided	slightly in closed	strongly in closed

6.

_____	_____	_____	_____	_____
strongly open	slightly open	undecided	slightly closed	strongly closed

Thank you very much for your time and cooperation.

EARLY CHILDHOOD PHYSICAL ENVIRONMENT SCALES

1. Pattern 905: Spatial Organization

2. Pattern 908: Behavior Settings

The following two scales were developed to measure independent physical environmental variables. They are the principle instruments available to date for the systematic description and assessment of the quality of the physical environment of child care centers and related early childhood environments. As mentioned in the preface, we have every intention of extending these two scales into the development of a complete package of scales for the comprehensive assessment and evaluation of the physical environment of child care.

To reasonably insure construct validity for major constructs of the physical environment of child care (as presented, for example, as "patterns" in Moore et al., 1979/1994), a detailed operational definition and rating scale have been prepared for two critical patterns in chid care centers, and for each level of each of these two patterns. These definitions and rating scales were informed by the work of many others (e.g., but not limited to Harms & Clifford, 1980) but were fashioned after our own Facility Inventories used for an earlier study of child care centers across the US and Canada (Cohen, Moore, & McGinty, 1978). As mentioned in the introductory essay to this report, a close inspection of the Harms and Clifford scales indicates that they deal much more with the social than the physical environment, and in fact make no distinctions between different types of physical settings. On the other hand, our own earlier inventories were too general and imprecise for the true assessment and evaluation of the physical aspects of child care. The two present scales have been called the Early Childhood Physical Environment Scales. They were first published and made available in 1982 (Moore, 1982).

Spatial Organization. The scale for Pattern 905 (from Moore et al., 1979/1994; see also Moore, Cohen, Armstrong, & McGinty, 1982) was constructed to assess the organization of the space of child care centers and other early childhood educational facilities as a whole.

The concept of open-plan school facilities was introduced to North American by Educational Facilities Laboratories in 1965. Since that time, controversy has surrounded the question fo the impact of open-plan versus closed-plan buildings (i.e., not to be confused with open versus traditional educational philosophies. Most of the data have been collected at the elementary-school level (e.g., George, 1975), not child care centers, so we must be cautious about making generalizations. The findings however are mixed, with some presumed advantages being ascribed to both open and closed plan schools

(see Moore, 1983, 1987). These mixed findings leave open the question of which type of environment is better for development.

Analysis of the findings on spatial organization led me to the working hypothesis that the middle ground might be the best overall solution, that is, that what I have termed *modified open plan facilities* midway between open and closed plan might resolve the difficulties of open and closed plans while retaining their advantages (Moore et al., 1979/1994). *Modified open plan space* is the organization of space into a variety of large and small activity spaces open enough to allow children to see the play possibilities available to them while providing enough enclosure for the child to be protected from noise and visual distractions.

The scale for *modified open plan facilities* is based on ten critical dimensions of spatial organization:

1. Degree of visual connection between spaces
2. Degree of closure of spaces
3. Degree of spatial separation of one space form another
4. Degree of mixture of large open areas and smaller enclosed spaces
5. Degree of separation of staff areas from children's activity areas
6. Degree of separation of functional areas from activity areas
7. Degree of separation of different age groups
8. Degree of separation of circulation from activity spaces
9. Degree of visibility of all major activity spaces from the entry
10. Degree of connection between interior and outdoor activity areas

Each item is measured on a five-point semantic differential-type scale. If a particular center scores on average low across the ten measures, it would be considered a "closed plan facility" with clear separation between activity areas, i.e., in the vernacular, a classroom plan or an egg-crate plan. If on the other hand a center scores on average high across the ten measures, it would be considered an "open plan facility" with lack of separation among activity areas. As mentioned above, our reasoning, based on the empirical literature, has been that the middle ground of "modified open plan centers" may provide settings more conducive to both cognitive and social development than either extremes of closed plan or open plan arrangements to child care buildings (for more of this argument, and the supporting research findings, see Moore, 1982, Chapter 1; 1983a; 1987, pp. 51-53). Thus a center scoring on average right down the middle of these bipolar opposites would be assessed to be superior to centers scoring on either extreme.

Behavior Settings. The scale for Pattern 908 (from Moore et al., 1979/1994) was constructed to assess the organization and character of particular behavior settings in child care centers and other early childhood educational facilities.

In most child care centers, much of a child's time is spent in informal, unstructured learning situations -- what Barker (1968) would call *behavior settings* -- with several different children working on different projects at once, some with a teacher, some on their own or in small groups. Discussions of behavior settings generally focus more on the sociobehavioral and temporal characteristics of settings than on their physical features. Extrapolations from the limited research literature on activity settings in child care centers led me to hypothesize that architecturally well defined behavior settings might decrease classroom interruptions and contribute to longer attention spans and greater involvement with cognitive developmental activities.

Well-defined behavior settings are areas limited to one activity, but not completely cordoned off rom other activities. They are sized to accommodate 2 to 5 children plus one caregiver, and typically include storage, surface areas, equipment, plug-ins, and display space for the activity. In many child care centers, and in many of the best child care settings, one behavior setting is provided for each major developmental activity (block play, arts and crafts, music, computers, nature study, quiet reading and listening, etc.). We have sometimes termed these *resource-rich activity pockets (*Moore et al., 1979/1994).

The scale for well-defined behavior settings is based on ten dimensions, each rated on a five-pint, Likert-type scale:

1. Degree of spatial definition and enclosure of the behavior settings in each room or area
2. Degree of vidual connections to other behavior settings
3. Degree of appropriateness of the size of behavior settings for one to four children and one adult
4. Degree of appropriateness of the amount of storage, work surfaces, and display space
5. Degree of concentration of all resources in the settings that pertain to one activity
6. Degree of softness
7. Degree of flexibility
8. Variety of seating and working positions in the behavior settings
9. Amount of resources available in the behavior settings
10. Degree of separation of behavior settings from circulation paths

Reliability and Validity. A number of methodological analyses have been carried out to quantitatively assess the reliability and validity of these two scales (reported in detail in Moore, 1982).

First, both to assess interjudge reliability and construct validity, three judges not familiar with the above hypotheses used drafts of these scales to independently rate 16 child care centers in the greater Milwaukee area in terms of both the organization of space and the

definition of behavior settings. Average percent exact agreement among the judges on the five-pint rating was moderately low (52% exact agreement across all three judges, with a low of 46% between one pair of judges). Ratings, however, were for the most part in the same direction (that is, one judge rated all settings more "critically," one more "neutrally," and one more "liberally," and these differences were consistent across settings). To see if there were any significant differences between settings in terms of these ratings, paired sample *t*-tests were calculated on the average ratings for closed versus modified centers, modified versus open centers, poorly defined versus transitional settings, and transitional versus well defined settings. The settings were rated significantly differently from each other in all cases. Furthermore, as a second measure of construct validity, the ratings were always in line with the characterization given them by the principle investigator (*t*'s running from 1.97 to 4.14, $df=59$ to 119, *p*'s ranging from $<.05$ to $<.001$).

Subsequent quasi-experimental research with multiple levels of treatment and proxy pretest measures (Moore, 1986) has further buttressed the validity of the scale by showing a number of positive advantages of modified open plan types in terms of both social and cognitively oriented behaviors over either extreme (Moore, 1983a, 1987). This scale, then, may be used to measure the degree to which any particular center approximates a modified open plan type.

Further quasi-experimental research in a set of 14 child care centers in Milwaukee County selected to represent three levels of the spatial definition of behavior settings -- well defined, transitional, and poorly defined -- has provided construct validity support for the notion that the spatial definition of behavior settings is related positively to cognitive development (Moore 1983b, 1986).

EARLY CHILDHOOD PHYSICAL ENVIRONMENT SCALES*

Please consider this Early Childhood Development Center and each of its primary activity spaces in terms of the following scales. Consider only the layout and character of the physical environment, not how it is or has been used by children and staff.

SCALE FOR PATTERN 905: ORGANIZATION OF THE SPACE OF THE CENTER AS A WHOLE

Please respond to the following statements by indicating your assessment of the organization of the physical environment of the entire center taken as a whole.

Name of Center: _____

		STRONG	SOME	UNDECIDED	SOME	STRONG	
1.	Degree of visual connection between spaces.	connection	—	—	—	—	lack of connection
2.	Degree of closure of spaces.	closure	—	—	—	—	lack of closure
3.	Degree of spatial separation of one space from another.	separation	—	—	—	—	lack of separation
4.	Degree of mixture of large open areas and smaller enclosed spaces.	mixture	—	—	—	—	lack of mixture
5.	Degree of separation of staff areas from children's activity areas.	separation	—	—	—	—	lack of separation
6.	Degree of separation of functional areas (e.g., kitchens) from activity areas.	separation	—	—	—	—	lack of separation
7.	Degree of separation of different age groups.	separation	—	—	—	—	lack of separation
8.	Degree of separation of circulation from activity spaces.	separation	—	—	—	—	lack of separation
9.	Degree of visibility of all major activity spaces from entry.	visibility	—	—	—	—	lack of visibility
10.	Degree of connection between indoor and outdoor activity spaces.	connection	—	—	—	—	lack of connection

SCALE FOR PATTERN 908: ORGANIZATION AND CHARACTER OF INDIVIDUAL ROOMS OR AREAS

Please respond to the following statements by indicating your assessment of the organization and character of the physical environment of each room or major area.

Name/Number of Room or Area: _____

Name of Center: _____

		STRONG	SOME	UNDECIDED	SOME	STRONG	
1.	Degree of spatial definition and enclosure of the activity centers in the room/area.	enclosure	—	—	—	—	lack of enclosure
2.	Degree of visual connections to other activity centers.	connections	—	—	—	—	lack of connections
3.	Degree of appropriateness of the size of activity centers for 1 to 4 children plus one adult.	appropriateness	—	—	—	—	lack of appropriate.
4.	Degree of appropriateness of the amount of storage, work surfaces, and display space in the centers.	appropriatenss	—	—	—	—	lack of appropriate.
5.	Degree of concentration of all resources in the activity centers that pertain to the activity.	concentration	—	—	—	—	lack of concentratic
6.	Degree of softness of the activity centers.	softness	—	—	—	—	lack of softness
7.	Degree of flexibility of the activity centers.	flexibility	—	—	—	—	lack of flexibility
8.	Variety of seating and working positions in the activity centers.	variety	—	—	—	—	lack of variety
9.	Amount of resources in the activity centers.	amount	—	—	—	—	lack of amount
10.	Degree of separation of activity centers from circulation paths between centers.	separation	—	—	—	—	lack of separation

* Scales developed by and copyright 1982 by Gary T. Moore based on the work of Moore, Lane, Hill, Cohen & McGinty (1979). Additional scales for other patterns of early childhood physical environments are being developed. For more information, contact the Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53201.

PLAYGROUND AND NEIGHBORHOOD OBSERVATION BEHAVIOR MAPS

1. Playground Observation Behavior Map
2. Neighborhood Observation Behavior Map
3. Supplementary Coding Sheet

A structured observation instrument--called a "behavior map"--has been developed for studying children's environments following the procedures outlined in Ittelson, Rivlin, and Proshansky (1971; cf. Moore, 1982). Based on a conceptualization of the dimensions of analysis of any environment-behavior interaction (Moore, 1979), behavior maps for applications in environmental psychology and environment-behavior studies have three major components: (1) description of the environmental setting, (2) description of the subject characteristics, and (3) description of the behavior (cf. Moore, Tuttle, & Howell, 1985). The setting (physical environmental variables) and subject descriptions (social environmental variables) constitute the independent variables, while the behavior observed constitutes the dependent variables. A properly constructed behavior map allows for the recording and coding of all three.

A review of the literature on child-environment relations (e.g., Moore, 1982) and observations of playground and neighborhood play settings has led to the identification of the most prevalent types of physical environmental behavior settings. A total of 11 different types of playground settings have been identified and operationally defined (e.g., gate area, houses, forts, open areas, climbing equipment). Similarly, a total of 20 different types of neighborhood settings have been identified and operational defined (e.g., residential street, sidewalk, front yard). In addition, four conceptually different types of objects involved in play have been observed (found objects, natural objects, bought objects, and other).

Subject variables of interest in the study of play environments include age, gender, race or ethnicity, number of children in the setting, other people present, and the role of the other people.

Based on the developmental literature and preliminary observations, 26 different types of relevant play behaviors have been identified, categorized, and operationally defined (Moore, 1982) including wheel toy play, arts and crafts, fantasy play, talking, etc. They have been categorized into six major categories of social-motor, motor, cognitive-motor, cognitive, social-cognitive, and social development.

Two alternative forms of this instrument have been developed, one for playgrounds and similar planned play settings, and one for neighborhood unplanned or spontaneous play settings, with an accompanying definition and coding sheet.

Reliability. These instruments have been pilot tested in both playground and neighborhood settings by two trained observers. The instruments were refined and interjudge reliabilities calculated, with percent exact agreement found to be consistently high across the entire observation schedules (84% exact agreement, $p < .001$; Moore, 1982)).

Several subsequent studies have been conducted using these observation instruments to test frequencies and proportions of the six different types of play in traditional, adventure playground, and neighborhood play settings (Moore, 1982, 1985; Moore, Burger, & Katz, 1979).

Procedure for Using the Behavior Maps. Observations should be conducted by trained observers (and after checking on interjudge reliabilities if more than one observer is being used) at sites and times randomly selected over the course of the study (time and space random sampling of behavior). The space should be divided into equal area segments, and a base map drawn and reduced for ease of reference. All forms should be able to fit on a clip-board. For playground observations, it is recommended that the observer become familiar with the children and then sit in an inconspicuous corner of the playground. The observe may then observe a spatial segment for a set period of time (a maximum of 5 minutes is suggested), then record the observations, then rest for a few minutes, and at the next set time observe the next randomly pre-selected segment, and so on. This procedure can be carried out in 2 to 2-1/2 hour sessions. For neighborhood observations, the observer can walk or bicycle through randomly pre-selected blocks and observe for set times (again 5 minutes), then record the information observed, rest, then continue through the next randomly pre-selected block or back alley, and so on for 2-1/2 hour sessions.

Data can be analyzed using standard SPSS or SAS bivariate and multivariate parametric and non-parametric routines depending on the purposes of the study, the research questions being pursued, and/or the hypotheses under investigation.

UNIVERSITY OF WISCONSIN-MILWAUKEE — SCHOOL OF ARCHITECTURE AND URBAN PLANNING — ENVIRONMENT-BEHAVIOR STUDIES RESEARCH GROUP

PLAYGROUND OBSERVATION

EVALUATION OF CHILDREN'S OUTDOOR RECREATION ENVIRONMENTS

OBSERVER: DATE: TIME:

ENVIRONMENT

LOCATION

environmental SETTING

OBJECT involved — FIND | BT | NAT | NA

RANGE of activity — ● | O | 5

GROUP

SEX & SIZE of group — M | F

RACE — B | W | O

AGE — PS | E | T

WHO WITH — A | T | P | NA

ROLE of other people — INV | SUP | SUR | NA

BEHAVIORAL CATEGORIES

- WHEEL TOY PLAY
- INF BALL GAMES
- GR MOTOR PLAY
- RAUCOUS PLAY
- SIDEWALK GAMES
- HUM & LET GAMES
- PH MOTOR PLAY
- PH MOTOR GAMES
- TOY PLAY
- ARTS & CRAFTS
- MAKING
  - building
  - constructing
  - fixing
  - putting things together
- FANTASY
- GARDEN & ANIM
- MUSIC & DANCE
- WALKING
- LISTEN TO RADIO
- OBSERVING
- RESTING
- WK ON CARS
- PROMOKING
- VANDALISM
- TALKING
- TRANSIT
- EATING
- SPTS/FIELD
- OTHER (write in)
- SOCIAL INTERACTION

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NEIGHBORHOOD OBSERVATION

EVALUATION OF CHILDREN'S OUTDOOR RECREATION ENVIRONMENTS

OBSERVER: DATE: TIME:

ENVIRONMENT

LOCATION

environmental SETTING

OBJECT involved: FIND | BT | NAT | NA

RANGE of activity: ● | ○ | ⊃

GROUP

SEX & SIZE of group: M | F

RACE: B | W | O

AGE: PS | E | T

WHO WITH: AD | TEEN | NA

ROLE of other people: INV | SUP | SUR | NA

BEHAVIORAL CATEGORIES

WHEEL TOY PLAY
SPORTS
INF BALL GAMES
GR MOTOR PLAY
RAUCOUS PLAY
SIDEWALK GAMES
NUM & LET GAMES
PH MOTOR PLAY
PH MOTOR GAMES
TOY PLAY
ARTS & CRAFTS
MAKING
FANTASY
GARDEN & ANIM
MUSIC & DANCE
WALKING
LISTEN TO RADIO
OBSERVING
RESTING
WK ON CARS
HOUSE CHORES
PICNICKING
VANDALISM
OTHER (write in)

SOCIAL INTERACTION: within | outside | conv | conflict | show off | fighting

INVOLVEMENT: high | low | none

UNIVERSITY OF WISCONSIN-MILWAUKEE
SCHOOL OF ARCHITECTURE AND URBAN PLANNING
ENVIRONMENT-BEHAVIOR STUDIES RESEARCH GROUP

Evaluation of Children's Outdoor Recreation Environments

NEIGHBORHOOD OBSERVATION SUPPLEMENTARY CODING SHEET

ENVIRONMENT:

Location — Street name and block number (plus alley to (NSEW) as appropriate)

Environmental Setting

RESidential Street
COMMercial Street
SIDEwalk
CORner
ALLEY
PORCH
FRont YarD
Back YarD
Side YarD
DRive incl. sidewalk to house
SCHOOL
CHURCH
PLAYGRound
CEMetery
PUBlic INSTitution incl.. clubs etc.
VACant lot
PARKing lot
COMMercial FACilities
RAILway lines and right-of-way

Objects Involved

FouND object
BoughT or BuilT object
NATural object
Not Applicable

Range of Activity

● with fixed object

○ confined to a particular, well-defined area

ᔑ no fixed setting, or moving

GROUP:

Sex & Size of Group — One column for each group of individual observed: data on M/F and size of each

Race — Black, White, Other, and numbers of each

Age — Preschool, Elementary, Teenager, and numbers of each

Who with — ADult, TEENager, Not Applicable (i.e., only peers)

Role of other People — INVolved, SUPervisory, SURveillance, Not Applicable

---

BEHAVIORAL CATEGORIES:

Wheel Toy Play	bicycling, skateboarding, roller skating, big wheels, etc.
Sports	basketball, baseball, etc. organized games
Informal Ball Play	outdoor informal volleyball, badminton, frisbee, throwing, kicking, etc.
Gross-Motor Play	climbing, swinging, sliding, rocking, running by self, other than with balls
Raucous Play	pushing, chasing, wrestling, running with body contact, etc.
Sidewalk games	skipping, hop-skotch, etc.
Numerical & Letter Games	dice, cards, reading, playing with letters, etc.
Fine-Motor Play	with dirt, sand, mud, water, hosing, small manipulative play without toys
Fine-Motor Games	'indoor games', foosball, bowling, etc.
Toy Play	fine-motor play with loose toys
Arts & Crafts	fine-motor crafts, two-dimensional arts
Making	building, constructing, fixing, putting things together, etc.
Fantasy	spontaneous or with rules, dress-up, role-playing, etc.
Gardening & Animals	digging, playing with plants, bushes, animals, etc.
Music & Dance	making music, instruments, drumming, singing, dancing, etc.
Walking	walking, hanging around, talking, bopping, etc.
Listening to Radio	radio, tv, stereo
Observing	sitting, watching, etc.
Resting	sitting, lying, not observing
Working on Cars	washing, repairing, fixing up, etc.
Household Chores	working on or around the house, garage, garbage, sweeping, etc.
Picnicking	picnicking, barbecuing, etc.
Vandalism	destruction not in the service of construction
Talking	primary activity of talking, not while walking
Transit	movement between two activities, not active walking
Eating	outdoor eating not picnicking, snacks, primary activity
Other	(write in: to be content analyzed later)

QUALIFYING SCALES:

Interaction — solitary, alone, by oneself
parallel, beside, similar, etc. without obvious interaction
cooperative, working together for a common purpose, helping
competitive, working toward opposite purpose, contest, opposition, rivalry showing off, display, acting up
fighting, aggressive, physical opposition

Note: leave blank if no category applies
attempt to enter observation into existing category before using the write-in

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ENVIRONMENT/BEHAVIOR OBSERVATION SCHEDULE

FOR EARLY CHILDHOOD ENVIRONMENTS

1. Instructions for Use
2. Sketch Map and Observational Grid
3. Environment/Behavior Observation Schedule
4. Operational Definitions and Coding Book

Observational measurement instruments have been developed for a range of dependent variables of interest in the study of the role of the socio-physical environment of chid care centers on developmentally oriented behavior, and are included below. Types of dependent variables include task versus transition time, random or idle behavior, degree of engagement in developmentally appropriate activities, child-initiated activity versus staff-directed activity, exploratory behavior, types of social interactions among children, cooperative versus competitive behavior, teacher involvement versus passive watching, and teacher-teacher interactions. In developing the below instrument, the child development, early childhood education, and child-environment literatures were soured for the most appropriate and most reliable existing measures, with an eye to using existing measures if possible, adapting them, or, as a last resort, developing a new instrument.

Many observational schedules have been used in the literature, but none was found (at least up to 1982, when this instrument was first developed) that covered the above range of behaviors. For example, several observation schedules have been developed by others for observing and recording attention span in classroom settings (all references given in Moore, 1982). Another records active engagement versus disordered behavior. Still others are useful only for teacher-child interactions, or other single behaviors. Many other studies in the literature, because of using experimental designs, measure these behaviors through pre-determined games or puzzles, a situation not applicable to a naturalistic field setting such as is favored in most environmental psychology, environment-behavior, and child-environment research. For example, the Madsen Cooperation Board is not appropriate for field settings as it involves a staged situation where children must complete a specified task under controlled conditions. On the other hand, the structured observation procedures used by other investigators, where they record a number of well-defined behaviors while children are involved in a tower building task, or other similar tasks, is instructive for field studies as they are based on activities more like ordinary events in a child care center. Similarly, other observations schedules, consisting of scales organized into categories of behavior emitted by teachers is suggestive of possible measures of types of teacher involvement. The closest

observational schedule able to be found up to 1982 for the measurement of everyday behaviors in child care centers in relation to features of the socio-physical environment are those developed by Harms and Clifford (1980 ff.), Perkins (1980), and Kritchevsky, Prescott, and Walling (1972).

Based on review of all of the above observational schedules, a new Environment-Behavior Observation Schedule for Early Childhood Environments was constructed in 1982, and is reprinted below. The main data recording sheet is comprised of three types of observations: (1) setting, (2) individuals, and (3) observed behaviors.

Under location, provision is made for recording the name of the center being included in the study, the room or area being observed, the date and time, and the number o the observational cell corresponding to numbers previously indicated on a grid plan of the center and all its principle spaces (see Instructions for Use, below).

Under individuals involved, space is provided for recording the number and demographic characteristics of the children and adults involved in the behavior setting (group size, numbers of children and adults, number of girls and boys, number of children in different age categories from 2 to 6 years of age, and numbers of children of different racial or ethnic groups).

The major portion of the observation schedule is given over to space for recording observed behaviors. These are divided into seven sub-categories: (1) general type of behavior (engagement, transitional, functional, random, or withdrawn--for operational definitions see the Coding Book, below); (2) initiation of behavior (spontaneous free, individual directed, or group directed); (3) exploratory behavior (immersed, somewhat involved, not involved); (4) social interaction (cooperation, competition, aggression, affection); (5) teacher involvement (co-action, encouragement, control, information, observation, presence but no involvement, no teacher present); and (6) teacher-teacher interaction (group, colleague, observation, more than one teacher but no interaction, one or no teacher present). Ordinal and interval scales have been developed within categories (e.g., distracted, attending, an immersed under the category of engagement; parallel, associative, and cooperative activity under cooperation, and so on). Each of the categories and scales have been based on the existing research literature for that behavior type. For example, Parten's conceptualization of the stages of social participation of preschool children has become one of the classics of child psychology. She introduced six categories of participation in play behavior: unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, ad cooperative play. this category system has been reused in any studies and has been simplified and reexamined in others. In the present observational schedule, Parten's six categories have bee divided into two sections of the Observation Schedule. The two behaviors that are not strictly play behaviors (unoccupied and onlooker) are recorded under "general type of behavior," while the four types of play behavior (solitary, parallel, associative, and cooperative) are recorded under "type of social interaction--degree of cooperation."

Based on these and similar considerations, a detailed set of operational definitions have been prepared for training observers, for checking interjudge reliability, and for use in observation sessions (see Coding Book, below). For ease of recording, the schedule itself is reduced to fit on a single page for each observational cell. Multiple copies of the schedule may be made for research purposes only.

Reliability and Validity. The observation schedule and coding book were developed and tested in three steps. Training of test observers occurred at the same time, in 1982. Three test observers used the instrument in various draft forms for observing 10 behavior settings in each of two rooms at the University of Wisconsin-Milwaukee Child Care Center. Interjudge reliabilities were calculated, a debriefing occurred, and the instrument and coding book were revised after each of these sessions. Three observers used a revised instrument for observing an additional 20 behavior settings for 30 seconds each with a 2-minute recording period followed by a rest period in new settings. Interjudge reliabilities were calculated between pairs of judges, and the instrument, coding book,, and time periods further refined. Two final test observers again used the instrument for observing another 20 behavior settings (observational cells--see Instructions for Use, below), for 10 seconds each, followed by a 1 minute and 50 second recording and rest period. Interjudge reliabilities were again calculated between judges and are reported in the next paragraph. The final observation schedule--reprinted here--along with all other instruments were submitted to and approved for use with infants through the oldest preschool children by the UWM Human Subjects Review Board.

To assess the reliability of the Environment-Behavior Observation Schedule, interjudge reliabilities were calculated after the second training and testing session (average percent of exact agreement between pairs of observers = 74.74%). After revisions of the instrument, and another retesting session, interjudge reliabilities were again calculated but in two ways. First, percept of exact agreements were calculated between the pair of observers (85.17%). Second, as the observational judgements were not just categorical, but in many cases ordinal and interval, and "percent of exact agreement" does not take into account chance agreement, Cohen's kappa (k) coefficients were calculated for all items on the observation schedule. The results indicated very high agreement between the observers (k's ranging from .66 to 1.00, only one k below .75, and average k = .86).

Procedure for Using the Environment/Behavior Observation Schedule. The procedure for using the Environment-Behavior Observation Schedule has three main phases.

First, each center to be included in a study needs to be contacted, the study explained, and informed consents obtained. Background information is likely best collected at this time (e.g., Center Profiles, Children Profiles, Teacher Demographic Profiles, etc.).

Second, data for all independent measures needs to be collected (e.g., possibly using the Teacher Style Rating Scale, Early Childhood Dimensions of Education Rating Scale, or equivalents, and the Early Childhood Physical Environment Scales).

Third, children's and staff behaviors in each of the settings are observed. Observations need to be done by trained observers on days, at times, and in observation cells randomly selected ahead of time. A randomly arranged schedule should be prepared and each center contacted to gain permission to observe at those times. If the time is not convenient (the center has planned a field trip for that day, or whatever), another randomly selected time should be tried, until mutually convenient times can be arranged.

When the observer(s) reach the center, it is suggested that they introduce themselves to the director and relevant teachers, but say no more about the intent of the study or of the administration of the behavioral mapping instrument than has been explained in a previous cover letter. The observer(s) should station themselves in a position in each room that will provide views of all observation cells but will not interfere with the children's behavior (e.g., the corner of a larger loft, a chair behind a bookcase in the corner of the room, etc.). All of this can be done with sufficient time before the official beginning of observation to allow the children to adapt to the new person and equipment in the room. If disruptions should occur, the observation session should be abandoned, and another randomly selected time should be tried.

The observer(s) will need a mini-tape recorder with unobtrusive ear plug-in, clipboard with observation forms, and pencils. The recorder can have time segments pre-programmed so as to avoid having to watch a clock or wrist-watch (10 seconds with 1 minute and 50 second breaks). Observations can likely be done for 20 minute sessions, then taking a 5 minute break, and then additional sessions of 20 minutes each for a 2-1/2 hour observation session (thus 50 observations can be made and recorded every 2-1/2 hours).

At each time beep of the recorder, the observer should move his or her attention to the next randomly pre-selected observation cell. If the cell is entirely empty of people, the observer can immediately look to the next cell indicated on the sheets. The total number of observational cases needed will depend on the research questions and/or hypotheses under investigation.[3] If the children move out of doors during a session, or en masse move to lunch or any other non-primary activity, the observations need to be interrupted for that period of time.

A coding sheet can easily be developed for the data based on the coding book and observational recording sheets. The data may then be input and analyzed using standard SPSS or SAS bivariate and multivariate parametric and non-parametric statistics depending on the purposes of the study, the research questions being pursued, and/or the hypotheses under investigation.

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[3] In one study conducted by the author (Moore, 1982), 1,200 observations were planned for each of two major hypotheses. Given that 50 observations could be made each half day (2-1/2 hours) or 100 per day, the study required 24 person-days of observation time spread out over a month.

ENVIRONMENT/BEHAVIOR OBSERVATION SCHEDULE

FOR EARLY CHILDHOOD ENVIRONMENTS *

Gary T. Moore
Environment-Behavior Research Institute
University of Wisconsin-Milwaukee

INSTRUCTIONS FOR USE

The following behavior map observation schedule has been developed to rate or evaluate early childhood environments. It is designed in particular for the rating of child care centers and other early development settings (specialized preschools, outdoor play/learning environments, etc.), but is appropriate for other uses also (e.g., recreation environments, housing, neighborhood settings, etc.).

Based on a conceptualization of behavior being affected by social environmental and physical environmental factors (Moore, 1979), a number of important characteristics of the physical environment have been identified (measured on the Early Childhood Physical Environment Scales), a number of important characteristics of the social environment have been identified (measured on the Teacher Style Rating Scale and the Dimensions of Education Rating Scale), and a number of predicted behavioral condequences have been identified (measured on this Observation Schedule).

To use this Observation Schedule, follow the attached instructions, paying particular attention to the operational definitions of category terms:

1. Identify environments to be studied or evaluated.

2. Design the evaluation study.

3. Select subjects.

4. Decide on proxy variables to be measured in lieu of experimental controls (e.g., those measured by the Teacher Style and Dimensions of Education scales).

5. Train observers following the below and especially the operational definitions.

6. Map each environment on the sheet provided (photo-copy extra copies), and divide the environment into a grid of observational cells. It is recommended that the cells be approximately 60 square feet for indoor settings and no larger than 250 square feet for outdoor settings, and that the boundaries correspond to naturally occuring behavior settings. Draw the environment, indicate boundary lines, number each cell on the drawing, and put unobtrusive markers in the setting if necessary to let observers know the boundaries.

7. Decide on an observational period. Approximately 10 second observations are recommended, with 50 second record and rest time between observations. After deciding on time, and training observers, check on interobserver reliability. It should reach at least 85% exact agreement between pairs of judges before the main study begins. Arrange some systematic means of informing observers about time (e.g., beeps recorded on a hand-help audio recorder).

8. Conduct the observations, using one sheet for each observational period and cell. Select the cells randomly using a page of random numbers. Indicate the selected cell number in the space provided. If no activity is occuring in that cell, move to the next randomly generated cell number. It is recommended to prepare all information on the top line of the Observation Schedule before observation sessions. It is further recommended to do no more than about 40 minutes of observations without a 5 to 10 minute break.

9. Code and analyze the data according to procedures appropriate for the design of the study.

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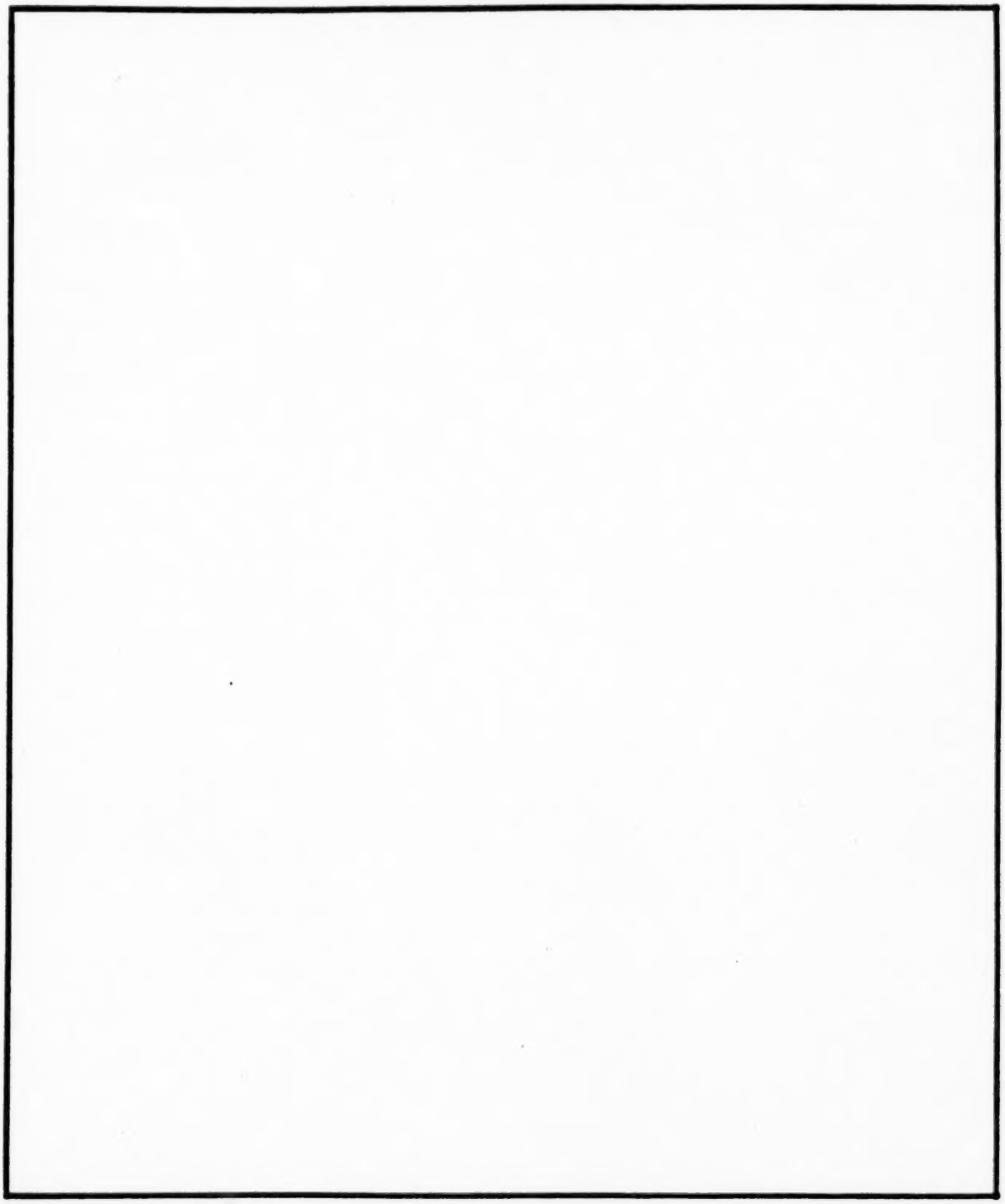
This battery of observational techniques has been developed by Gary T. Moore with assistance from Naomi Leiseroff, Marleen Sobczak, and Harry Van Oudenallen. It may be copied for unlimited research use if appropriately cited. For more information, contact the Environment-Behavior Research Institute, School of Architecture and Urban Planning, University of Wisconsin-Milwaukee, Milwaukee, WI 53201.

ENVIRONMENT/BEHAVIOR OBSERVATION SCHEDULE FOR EARLY CHILDHOOD ENVIRONMENTS

SKETCH MAP AND OBSERVATIONAL GRID

Center: Room or Area:



Draw a sketch map of the entire center on one page, and of each room or major program area observed on a separate page. Indicate rough dimensions. With dashed lines indicate the observational grid for each room. Label each observational cell with a number and the name of the predominant activity in that cell over time. Record the relevant number on the observation schedule for each observational segment.

Observer _____ Date _____ Time _____ Seq # _____

ENVIRONMENTAL SETTING
The Location of the Observed Behavior

- Center ☐
- Room/Area ☐
- Observational Cell ☐

INDIVIDUALS INVOLVED
The Number and Characteristics of Children and Adults Involved

- Group Size ☐
  - Children ☐
  - Adults ☐
- Genders
  - Girls ☐
  - Boys ☐
- Ages
  - 2 to 3 ☐
  - 3 to 4 ☐
  - 4 to 5 ☐
  - 5 to 6 ☐
  - 6 and over ☐
- Ethnicity
  - White ☐
  - Black ☐
  - Hispanic ☐
  - Other ☐

OBSERVED BEHAVIORS
Observable Behaviors Charact as a Whole or for Most of the Observation Segment

SECTION 1: GENERAL TYPE OF BEHAVIOR

- Engagement ☐
  - Immersed ☐
  - Attending ☐
  - Distracted ☐
- Transitional ☐
  - Only Transitional ☐
  - Partially Transitional ☐
  - Primarily Engaged ☐
- Functional ☐
  - Only Functional ☐
  - Partially Functional ☐
  - Primarily Engaged ☐
- Random ☐
  - No Sustained Activity ☐
  - Directed Interest ☐
  - Spontaneous Interest ☐
- Withdrawn ☐
  - Vacant Staring ☐
  - Intermittant Focusing ☐
  - Passive Observation ☐
- Empty Cell ☐
  - Unclear ☐

OBSERVED BEHAVIORS (continued)

SECTION 2: CHILD-INITIATED VS STAFF-DIRECTED BEHAVIOR

- Initiated ☐
  - Spontaneous Free ☐
  - Individual Directed ☐
  - Group Directed ☐
  - Unclear ☐

SECTION 3: EXPLORATION

- Exploration ☐
  - Immersed ☐
  - Somewhat Involved ☐
- Not Applicable ☐
  - Unclear ☐

SECTION 4: SOCIAL INTERACTION

- Interaction ☐
  - Reciprocated ☐
  - Acknowledged ☐
  - Not Acknowledged ☐
- Not Applicable ☐
  - Unclear ☐

SECTION 5: COOPERATION, COMPETETION, AGGRESSION, AFFECTION

- Cooperation ☐
  - Cooperative Activity ☐
  - Associative Activity ☐
  - Parallel Activity ☐
- Competition ☐
  - Absolute Gains ☐
  - Relative Gains ☐
  - Rivalry ☐
- Aggression ☐
  - Physical Attack ☐
  - Threatened Attack ☐
  - Verbal Abuse ☐
- Affection ☐
  - Intimate Physical ☐
  - Friendly Physical ☐
  - Verbal ☐
- Not Applicable ☐
  - Unclear ☐

SECTION 6: TYPE OF TEACHER INVOLVEMENT

- Involvement ☐
  - Co-Action ☐
  - Encouragement ☐
  - Control ☐
  - Information ☐
  - Observation ☐
  - No Involvement ☐
- Not Applicable ☐
  - Unclear ☐

SECTION 7: TYPE OF STAFF-STAFF INTERACTION

- Interaction ☐
  - Group ☐
  - Colleague ☐
  - Peer Observation ☐
  - No Interaction ☐
- Not Applicable ☐
  - Unclear ☐

The School of Architecture & Urban Planning
The University of Wisconsin-Milwaukee
Center for Architecture & Urban Planning Research

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ENVIRONMENT/BEHAVIOR OBSERVATION SCHEDULE

OPERATIONAL DEFINITIONS AND CODING BOOK

PART I: ENVIRONMENTAL SETTING

Indicate observatonal cell number and/or setting name. Indicate name of environment and unit within it (e.g., child care center and room).

PART II: INDIVIDUALS INVOLVED

Indicate the number of individuals involved and their relevant demographic characteristics. Count all the individuals in each behavior setting at the beginning of the observation or entering during the observation period. Be sure to fill in all boxes with the appropriate number, even if zero; this will greatly aid subsequent key punching for computer data analysis.

PART III: OBSERVED BEHAVIORS

Indicate which of the following developmentally appropriate behaviors characterize the group taken as a whole. If several behaviors are present, record them all. Fill in the appropriate boxes, at least one in each section. Training and pretesting should eliminate the use of the "unclear" box, but use it if necessary.

1. GENERAL TYPE OF BEHAVIOR

Engagement — Child is visually and/or physically involved with a point of focus. Point of focus may be another person, an object, an activity, or the child her or himself. Behaviors include: looking at focus, listening to focus, participating in a prescribed or spontaneously initiated activity, and/or touching or manipulating the point of focus.

- Immersed — Totally immersed with point of focus, with very little or no time watching other points of focus or being interrupted.
- Attending — Partial attention to point of focus and partial attention to other points of focus or being interrupted.
- Distracted — Easily distracted or interrupted, spending more time watching other points of focus but still returning to the initial point of focus.

Transitional	Behavior exhibited during the time between period of disengagement from one point of focus to engagement with another point of focus. To be considered a transition, the disengagement from one focus and the engagement with another focus must be anticipated or seen directly.	
	Only Transitional	Only transitional behavior totally interrupting other behavior or coming between periods of engagement..
	Partially Transitional	Partially transitional behavior and partially engaged behavior in about equal proportions.
	Primarily Engaged	Displays some transitional behavior but is primarily engaged in a point of focus.
Functional	Behavior intended to meet some physical bodily need. Behaviors include bathroom behaviors, tending to bodily injuries, eating or drinking, matters of personal hygiene, and attending to clothing.	
	Only Functional	Functional behavior totally interrupts other types of behavior.
	Partially Functional	Partially functional behavior and partially engaged behavior in about equal time or content proportions.
	Primarily Engaged	Displays some functional behavior but is primarily engaged in a point of focus.
Random	Behavior that is nondirected and shifts rapidly from one setting or object to another. Behavior that is impulsive, fast moving, and ineffective. Includes actions that are incomplete and hyperactive behavior.	
	No Sustained Activity	Shifts rapidly between objects, activities, and/or settings. Shows no sustained point of focus.
	Directed Interest	Shifts between objects, activities, and settings but shows interest in at least one point of focus when assisted by another person.
	Spontaneous Interest	Shifts between objects, activities, and settings but shows spontaneous interest in at least one point of focus without assistance.

Withdrawn	Behavior that is not considered engagement, transitional, functional, or random, but appears to be withdrawn. Characteristic behaviors include vacant staring, staying close to adults without visually or physically exploring the environment, and indications of fearfulness such as crying, hiding, thumb-sucking, auto-manipulation, and trembling.	
	Vacant Staring	Vacant staring with no apparent point of focus. Includes thumb-sucking, auto-manipulation, and drowsiness.
	Intermittant Focusing	Intermittant focusing on several different points of focus but with equal amounts of withdrawn behavior.
	Passive Observation	Staring in one direction. Passive observation with no apparent engagement with the point of focus.
Unclear	Unclear which of the above best applies; undecided; cannot code.	

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2. CHILD-INITIATED VS STAFF-DIRECTED BEHAVIOR

Initiated	The person or persons who initiated, suggested, or directed the behavior observed. Accurate coding of who initiated the behavior will require recall of the sequence of behaviors in a setting, e.g., to recall if a staff member initiated a sequence of behaviors by offering "options" or "choices" that the children then followed for a period of time.	
	Spontaneous Free	Spontaneous free choice. Child chooses from among all activities possibly available. An adult may or may not have made prior preparations, but has not suggested which activities to do.
	Individual Directed	Someone other than the child has planned an activity in which all children participate, but which is carried out by each child individually or in small groups.
	Group Directed	Someone other than the child leads an activity in which the children all participate as a group.
	Unclear	Unclear which of the above best applies.

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3. EXPLORATION

Exploration	Behavior that is directed toward investigating, examining, studying, or searching out of an object, activity, or setting, or other points of focus.	
	Immersed Exploration	Completely immersed in exploratory activity. Includes inspection, manipulation, asking questions, producing effects, etc.
	Somewhat Involved Exploration	Involved in exploratory activity in conjunction with another activity or activities. Includes being somewhat involved in exploratory play but not fully absorbed, such as glancing up or being interrupted.
	Unclear	Unclear which of the above best applies.
Not Applicable	No evidence of exploratory behavior among the one or more children in the setting.	

4. SOCIAL INTERACTION

Degree of Interaction	Behaviors that are directed toward or involve large amounts of social interaction between two or more children and/or one or more adults, but not between adults alone. Includes visual, verbal, and physical interaction, either around an external point of focus or between the people directly.	
	Reciprocated	Exhibits social behavior that is reciprocated by another person.
	Acknowledged	Exhibits social behavior that is acknowledged by another person but that is not reciprocated or answered.
	Not Acknowledged	Exhibits social behavior that is neither reciprocated nor acknowledged by other persons present.
	Unclear	Unclear which of the above best applies.
Not Applicable	No evidence of social interaction behaviors involving children or only one person present in the setting.	

5. COOPERATION, COMPETETION, AGGRESSION, AFFECTION

Cooperation	Working together toward a common goal. Association for mutual benefit, or engaged in a joint enterprise.	
	Cooperative Activity	The efforts of one or more children are supplemented by those of another or others. Included is use of a common object, sharing of play materials, organization toward a material product, and playing formal games.
	Associative Activity	Overt recognition of common activity, interests, and/or personal associations, but no organization of activity or clear cooperation toward a common goal. Includes borrowing toys, following one another, engaged in similar activities side-by-side.
	Parallel Activity	Independent activity bringing the child among others. Includes playing with objects that are similar, playing beside rather than with other children.
Competition	Striving or vying with one another or others for personal or group advantage.	
	Absolute Gains	Maximizing personal or group gains at the expense of another person or group.
	Relative Gains	Obtaining more than a peer, but not through overt and direct competition with the other.
	Rivalry	Attempts to minimize gains of a peer, but without success. Includes attempts to equal and surpass, or to pursue the same object or person.
Aggression	Commencing hostile actions or behaviors, including verbal quarrels, visual hostility, and physical attacks.	
	Physical Attack	An actual attack. Includes hits, strikes, snatching or damaging property of others, pushing, pulling, including injury by agent.
	Threatened Attack	Threatened attack upon another person. Includes threatening gestures, verbal threats, verbal conflicts over ways of using things, enticing others to attack a third person.
	Verbal Abuse	Verbal but not physical aggression. Includes annoying, teasing, commanding, demanding, humiliating when carried to extremes.

Affection	Showing of fond feelings or affection toward one or more other children or adults.	
	Intimate Physical Affection	Behavior directed toward another person or persons that indicates very warm regard and involves physical contact. Includes kissing, patting, fondling, hugging.
	Friendly Physical Affection	Less intimate or less physical behavior toward another person or persons that indicates warm regard or emotions and involves less physical contact. Includes smiling, holding hands, touching.
	Verbal Affection	Emotional expression involving verbal communication but not physical contact. Includes speaking in a friendly manner, laughing with someone else, reassuring, complementing, offering praise, expressing warm feelings.
Unclear	Unclear which of the above best applies.	
Not Applicable	No evidence of social interaction behaviors involving children or only one person present in the setting.	

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6. TYPE OF TEACHER INVOLVEMENT

Involvement	Some manner of involvement of the teacher or other adult in the activities of the children.	
	Co-Action	Teacher and child work or play together as partners.
	Encouragement	Teacher responds to cues from child, offers suggestions, gives opinions when asked, gives verbal reinforcement, accepts feelings and ideas, praises or complements, shows verbal or nonverbal comfort, etc.
	Control	Teacher tells child what to do or what not to do. Controls, criticizes, gives directions or directive comments, justifies authority, gives orders, etc.
	Information	Teacher formally or informally gives information, instructions, asks rhetorical questions, offers instrumental help, answers direct questions, etc.
	Observation	Teacher watches with no apparent interaction.

	No Involvement	Teacher in proximity to behavior and setting, but with no apparent involvement in activity, including no observation of the activity. Includes looking elsewhere, being involved in own activity, being interrupted.
	Unclear	Unclear which of the above best applies.
Not Applicable	No teacher in behavior setting.	

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7. TYPE OF STAFF-STAFF INTERACTION

Interaction	Verbal, visual, or physical interactions between two or more staff members or other adults either in the presence of children or by themselves.	
	Group Interaction	Group meetings, group discussions, joint action, working together on a task, etc.
	Colleague Interaction	Informal interchange regarding children, curriculum, policies, feedback, reaction, advice, etc.
	Peer Observation	One or more teachers watching other teachers, either formally or informally, without verbal interaction.
	No Interaction	Two or more teachers in the setting, but with no noticable interaction between them.
	Unclear	Unclear which of the above best applies.
Not Applicable	No teacher or only one teacher in the behavior setting.	

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